

# Pateke News

August 2011

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## Editorial

This is the first newsletter published by the Pateke Recovery Group for a very long time. That long that I cannot remember the last occasion!

Over the years, many who are not now involved have contributed to the growing success of pateke, too many to mention. We acknowledge your contribution and hope you enjoy reading about the work of your successors.

Because it is the first newsletter for a long time and our readership includes many who have little detailed knowledge of the past and existing work of the Pateke Recovery Programme, we have chosen to publish some fairly detailed reports in full. We hope the historical and background material included is useful to your understanding of the current work.

Finally, if you have news of pateke, we would appreciate hearing from you. We would love to hear from people at past release sites or if you see birds outside the existing populations.

**Ossie Latham**

swansmead@farmside.co.nz

## From the Pateke Recovery Group Leader

This has been a really productive year for the Pateke Recovery Programme, with increases in the pateke populations along the eastern Northland coast (Mimiwhangata and Whananaki), and on Great Barrier Island. Furthermore, the translocated pateke populations around the country continue to do well.

All this success is due to the hard work of all the field staff and volunteers out there killing predators and managing habitat, and to the members of the captive programme who produce the birds for release - a BIG THANK YOU to all of you - it couldn't be done without you!

This year has also seen the start of a very exciting piece of research being done by Debbie Armstrong, a PhD student from Otago University, which aims to answer some of the questions we have about pateke habitat use. This research will help to guide future habitat management decisions for pateke around the country.

Finally, I would like to farewell Jo Sim, the DOC pateke ranger on Great Barrier Island, and thank her for her valued input into the Pateke Recovery Group, and her dedication to pateke recovery. You will be missed Jo.

**Andrea Booth**

## Feature article

### Study on the habitat selection of pateke

***Debbie Armstrong, a PhD student from Otago University brings us a summary of the work she is doing on pateke habitat.***

I am carrying out a study on the habitat selection of the pateke at Mimiwhangata Coastal Reserve and Great Barrier Island for my Ph.D. research.

During this study, I will be looking at both the home range of individual pateke and the use of different habitat types within the home range.



## Key questions I intend to answer:

### 1) What habitats are being used by individual pateke?

To answer this I will use location data collected by GPS (global positioning system) units attached to the pateke.

I will then identify habitat features within the territories of individual pateke, and identify the features they are utilising within their territories. I will then identify the most commonly selected habitats and rank all of the used habitats in order of preference.

### 2) What is the optimal habitat type for the pateke?

Habitat preference is not always a reliable indicator of the optimal habitats for a species.

For example a habitat type may be highly favoured, but if it is difficult to find then it cannot be utilised much .

Or, for species such as the pateke whose habitats have been altered dramatically by humans, environmental cues used by the species to select habitat might no longer be associated with quality habitats. Individuals may then be lead to making 'incorrect' decisions when selecting habitat, which in turn may lead to reduced survival.

Therefore, in addition to looking at the habitat pateke are selecting, I will be exploring the relationship between specific habitat selections, and pateke survival and health to attempt to identify the optimal habitat for the pateke.

### 3) Is there a difference in habitat selection between the Great Barrier Island and Mimiwhangata pateke populations?

Productivity of pateke on Great Barrier Island has been recorded to be only 25% of that reported in Northland. I intend to explore the possibility that the low productivity is due to available, or unavailable, habitat.

I will compare the habitat selections made by pateke on Great Barrier Island to the selections made by pateke in Northland. If any differences in selection are identified, I will then attempt to determine the causes of these differences. For example, are the same habitat types available to both populations or are the habitat options different at each location.

I will also identify whether or not habitats previously deemed 'optimal' are available at both locations and if birds are selecting these on Great Barrier Island.

### 4) Is there a difference in habitat selection between juveniles and adults on Great Barrier Island?

The decline of pateke on Great Barrier Island in recent years has been most evident in the low survival rates of juveniles. Many of these deaths have been identified to have been caused by starvation, even though the pateke has the capability of being a generalist feeder.

I will compare the habitat selections made by juvenile pateke on Great Barrier Island with juvenile survival and health data to determine if there is any relationship between survival and habitat choice. Additionally, I will compare the habitat selection of the juveniles with adults and attempt to identify why the adults are surviving and the juveniles are not.

If a difference in habitat selection is evident, I will then attempt to determine the reason for the unsuccessful selections.

*It is hoped that the information collected throughout this study will provide conservation managers with a more thorough understanding of the relationship between pateke and their habitat, which may then be applied to further conservation efforts for the species.*



## Difficulties of tracking birds

Although there have already been several extensive studies of pateke habitat use, there are still large gaps in our knowledge.

Elimination of these knowledge gaps has been difficult with traditional VHF (very high frequency) telemetry, as this method requires an observer in the field to track each bird manually.

The nocturnal behaviour combined with the wetland habitat of the pateke makes them very difficult to track and record habitat data for using this method.

## Using new wildlife tags

Therefore, for this study I will be applying a new generation GPS wildlife tag to collect data on pateke habitat use.

The wildlife tags I will be using were developed by the University of Otago Physics Department. They combine use of both GPS and cell phone technology in sub-20g, back-pack mounted tags. The cell phone (GSM) technology in the tags allows the tags to send the collected data to us via text message.

Making use of cell phone networks to transmit data collected by the GPS eliminates the need to regularly recapture the pateke to subtract the data, reducing species disturbance.

## Two-week trial

With a lot of help from the local DOC staff (thanks Tiff, Pete and Ian!), we carried out a two-week trial on four birds in Mimiwhangata to ensure

- the size, shape and weight of the tags is not causing discomfort, distress or injury to the birds,
- the weight of the tags is not preventing flight or hindering mobility.

Through daily observations of each bird, they were all found to have full mobility and be able to fly whilst wearing the tags, indicating that the size, shape and weight of the tags is suitable for the pateke.

However, there were some problems caused by imperfections on the surface of the tag. These tags were subsequently removed and the casing of the tags has since been redesigned so that they are perfectly smooth and flat.

## Additional trials

An additional trial will be carried out this month to ensure the issue has been solved. We will then be tagging a further 11 males and commencing a one-month trial.

The purpose of the one-month trial is to look for any longer term impacts on the health and condition of the pateke that may be caused by the tag.

At the completion of this trial, the tags will remain on the birds for a further five months, the estimated battery life of the tag, at which time the tags will be changed on 10 of the individuals to provide us with a data on each bird over a year. I will also tag 10 adult females at Mimiwhangata once breeding season is completed.

20 adult birds and 20 juvenile birds will be tagged at Great Barrier Island for a period of six months, the timing of which will be dependent on erecting a cell tower at Okiwi Basin. The cell tower has been constructed by the Otago University Physics Department and will provide cell coverage in the area for the duration of the study.

It is hoped that the information collected throughout this study will provide conservation managers with a more thorough understanding of the relationship between pateke and their habitat, which may then be applied to further conservation efforts for the species.

## Clive Stone joins the Recovery Group

### *Ngatiwai bring the expertise and mana of Clive Stone to the Recovery Group*

The last Recovery Group meeting welcomed Clive Stone to the meeting.

His quiet and considered diplomacy was a welcome addition to the Group.

Clive has accepted an invitation to make a presentation of Ngatiwai's conservation activities to the Recovery Groups next meeting in August.



A photo from the egg translocation from Mimiwhangata to Christchurch. This project is referred to in Kevin's report.  
From left: Anne Richardson of Peacock Springs, Hohepa Briggs, kaitiaki from Tuahuriri, kai Tahu and Clive Stone, kaitiaki from Ngatiwai

## Banrock Station Wines renews sponsorship

The 12 year relationship between Ducks Unlimited and Banrock Station Wines continues this year with a successful application to Banrock for funds to support this year's monitoring programme.

The value of the sponsorship is \$45,000, and the Ducks Unlimited Directors are pleased to continue channeling the funds to the pateke programme.

Banrock Station Wines expect to have a promotion incorporating their sponsorship sometime in October.



# Pateke Captive Breeding programme update

**By Kevin Evans, Pateke Captive & Reintroductions Coordinator**

The captive breeding programme continues to be a well-oiled success machine producing 197 birds for release during 2010, thanks to the contributions of the 20 captive breeding facilities that make up the program and produce the juvenile birds for release.



brought into captivity for incubation, rearing, flock mating then being sent out to breeders so they help produce more offspring for release back into the wild. A good productive breeding pair can produce over 100 offspring in their lifetime which makes captive stock a good investment for the future.

Disease screening continues to be an ongoing procedure as part of any reintroduction. With very few positives found out of the very large number of teal tested over the past 10 years our protocols have now been rationalised. This has resulted in major cost savings while still ensuring all birds released meet strict health standards and are at their optimum for survival in the wild.

Freighting the birds around the country is a large cost to the programme, but we have been fortunate enough to have some sponsored flights by AirNZ for large consignments of birds heading to release sites from Christchurch. I am most grateful to AirNZ for their generosity and we hope this arrangement will continue in the future.

We have now completed releases into Tawharanui (124 birds released) and Cape Kidnappers (242 birds released) and I would like to thank Matt and Tamsin for their efforts

## Releases

Date	Location	Number of birds
February 2010	Tawharanui	40
	Arthur Valley	39
May 2010	Cape Kidnappers	80
August 2010	Cape Kidnappers	38
February 2011	Arthur Valley	80
May 2011	Tutukaka	64
August 2011	Yet to be completed	

We also hatched 9 wild eggs from Northland as part of the ongoing revitalisation programme which is helping increase the wild genetics of the captive program.

The releases are proving very successful with extremely high survival rates of around 70% over the past few years. This is an excellent result helping the birds to survive, breed and form new self sustaining populations.

***The releases are proving very successful with extremely high survival rates of around 70% over the past few years.***

So far this year 144 birds have been released, with another release planned to occur during August.

Currently staff at Mimiwhangata are in the process of monitoring wild females with radio transmitters attached to see when females start to nest. Once we have 4 or 5 females confirmed nesting we can plan collecting some more eggs. The eggs will be



during that time. They have been great to work with and their passion and dedication to the releases has ensured the greatest survival and outcome for the birds.

Peacock Springs staff continue to do a great job of pre-release conditioning all birds. Staff are fully involved in the work building up to each release (worming, weighing, record keeping, banding, and holding birds that have radio transmitters attached). They also incubate and rear the wild eggs brought in, and flock mate the various bloodlines for me. This is on top of having 4 very productive breeding pairs producing young for releases. So a special thanks to Anne and the girls for their excellent work and dedication.

I would like to thank all the captive breeding facilities. Without the efforts of each and every

one of you none of this would be possible. The true value of your in-kind generosity last year would roughly equate to \$90,000, and this year will be very similar. A lot of work goes on behind the scenes that is never seen, and your efforts of breeding multiple clutches of birds for release each year is what has turned the survival of this species around, so thanks to all of you.

We are now at the end of our current recovery plan. With some major changes in the wind for DOC it is timely that we too are now looking at revising our focus and direction for the next 10 years. We have managed to halt the decline over the past 10 years, now it is time to grow the species population and range.

Don't forget to vote for brown teal / pateke on the DOC survey "Quintessentially Kiwi"

## Tutukaka Land Care Trust update

### ***Report from the always enthusiastic Mike Camm, Tutukaka Landcare Trust.***

The TLC Trust was established in Jan 2003, to protect a residual kiwi population in the coastal forest stretching from Ngunguru to Sandy Bay, on the coastal strip north east of Whangarei.

Over the last 8 years, we have progressively expanded the predator control area to its present 3000ha of mostly private land. Early on we recognised that the area was a traditional flocking site for pateke and explored the possibility of participating in the recovery programme for the species.

With the support of the Pateke Recovery Group, and funding from the NZ Govt Biodiversity Condition Fund, The World Wildlife fund, Banrock Wines, local businesses, and volunteers, our first release of captive bred birds took place in May 2007. A rogue stoat took 7 of the 23 birds released in the first week! Heartbreaking for all involved. We pressed on and the culprit (at least we think it was) was trapped 9 months later. The survival rate for that first release was 13%.

In May 2008, a further 39 pateke were released, and happily this time we had a 82% survival rate.

Three weeks ago, 63 pateke were released. 19 of these have transmitters on so we can follow their survival and dispersal. To date all the transmittered birds are alive and well. One has moved about 2km down the catchment from the release site. So far so good, and we have taken another step on our way to re-establishing pateke on the Tutukaka Coast.



# Cape Kidnappers hit with heavy rain

***Tamsin Ward-Smith tells us how hard Cape Kidnappers was hit with heavy rain and yet, pateke fair well***

Cape Sanctuary was hit hard by the storm, which bombed the coastal Hawke's Bay region in April. In some places, over 600 mm of rain fell in 48 hours causing extensive flooding in the local communities and cutting off access to much of Cape Kidnappers and Haupouri Stations.

## Storm damage

Mudslides off the steep coastal faces took out large stretches of the predator-proof fence with over 300 m lost in eight separate sections.



Fence repairs got underway immediately once the water subsided and are now complete but it has been a big job.

There was also damage to the sanctuary's predator control programme with a number of the gully bait stations and trap boxes buried under silt, flattened by trees, or washed up banks.

It was certainly all hands on deck and we are very grateful to everyone who responded so

quickly. Within two weeks volunteers had built 200 replacement trap boxes and these have now been re-installed along with 200 new bait stations.

## Pateke survived the dry summer

Despite dry conditions over summer, pateke have survived well.

From flock counts, pateke with radio-transmitters, and known pairs we estimated the population in February to be at least 130.

This estimate did not include birds that we now know are residing in the wetland dune areas and on the large outer coastal dams, gullies and creeks which are not visited frequently.

James McLaughlin and his pateke dog Tui surveyed through these areas in early June and detected at least 10 birds in the dunes of Rangaiika and more in the outer dams. 80 individuals were sighted during his recent survey.

However, the dog was only allowed to indicate and not disturb birds so potentially others went undetected and some habitat was not checked.

The single male pateke known to reside outside the sanctuary on the Te Awanga lagoon has been joined by three others.

The 2009/10 breeding season was good with at least 80 ducklings produced from 14 regularly sighted pairs. 80% of these ducklings survived to full size.

The rough weather recently seems to have been good for pateke with breeding already off the mark this season—two new ducklings were sighted in early June and a number of other pairs are showing signs of breeding behaviour.



## Farewell to Joanna Sim

### *We bid farewell to Aotea/Great Barrier Island Ranger Joanna Sim*

It's 6 years exactly that Jo has been working on Great Barrier Island.

In that time she has become a very thoughtful and active participant on the Pateke Recovery Group. Jo has been excellent at implementing practical solutions that have enhanced pateke habitat.

Jo owns a gorgeous and active Black Labrador called Maddi. In my view, one of the very best Labs I have ever met. Maddi is four, bred by John and Annette Cox in Hahei, and was fully certified for pateke at 18 months (interim certified at 1 year,) interim certified for black petrel at 18 months, then fully certified for petrel work at 31/2 years. She has worked at Mimiwhangata, Tawharanui and Little Barrier Island in addition to GBI.

Jo leaves the Barrier and the Recovery Group to take up a post at Boundary Stream in the northern Hawkes Bay. It is hoped that Maddi can be used throughout the Hawkes Bay Conservancy on pateke, seabirds and maybe kiwi.



## Not all cyclone damage is bad for pateke

### *From Great Barrier, Jo Sim reports*

Not all cyclone damage is bad. Photo taken by Jo Sim on 23rd March.....she counted 36 pateke.

Admittedly there had been glyphosate sprayed here in 2009 which knocked back the mercer grass -



However, the flooding cleared much of the dead grass away and created a pond which has certainly helped to restore this area to what it used to be.



# Arthur Valley pateke releases

***Get pateke release updates and read about the extremes of weather and isolation of the Arthur River release in May 2011.***  
***By Andrew 'Max' Smart.***

## 2009 Releases

20 sub-adult pateke were released into the Arthur Valley (Fiordland National Park) on 12 March 2009. This area had been identified by the Pateke Recovery Group as a potential release site in the 2002 site assessments and Nigel Miller performed an onsite assessment in December 2006.

19 of the 20 birds were colour-banded and had Kiwitrack transmitters attached.

Despite a number of transmitter failures over the year with only two transmitters still running by February 2010 (12 months after first being switched on), we were able to gather information to be confident that at least 13 or 15 (65%-75%) of these birds survived to one year post release.

2 females were known to have nested; one nest held 3 eggs but was unfortunately flooded approximately 25 days through incubation and the other was thought to have been a trial nest.

With no working transmitters, it has been difficult to follow these pateke and for most their fate is unknown.

1 male pateke is known to be alive and has paired with a female that was released in 2010, another bird has been found upstream from the release location towards Diamond Creek, 2 other birds (with Kiwitrack transmitters) were seen from the track towards Giants Gate hanging out with a group of scaup in early March 2011. The individual identity of these birds is unknown.

## 2010 Releases

This year, a further 39 sub-adult pateke were released into the Arthur Valley on 16 March 2010. All birds were colour-banded and had ATS transmitters attached. All the birds looked really good upon release.

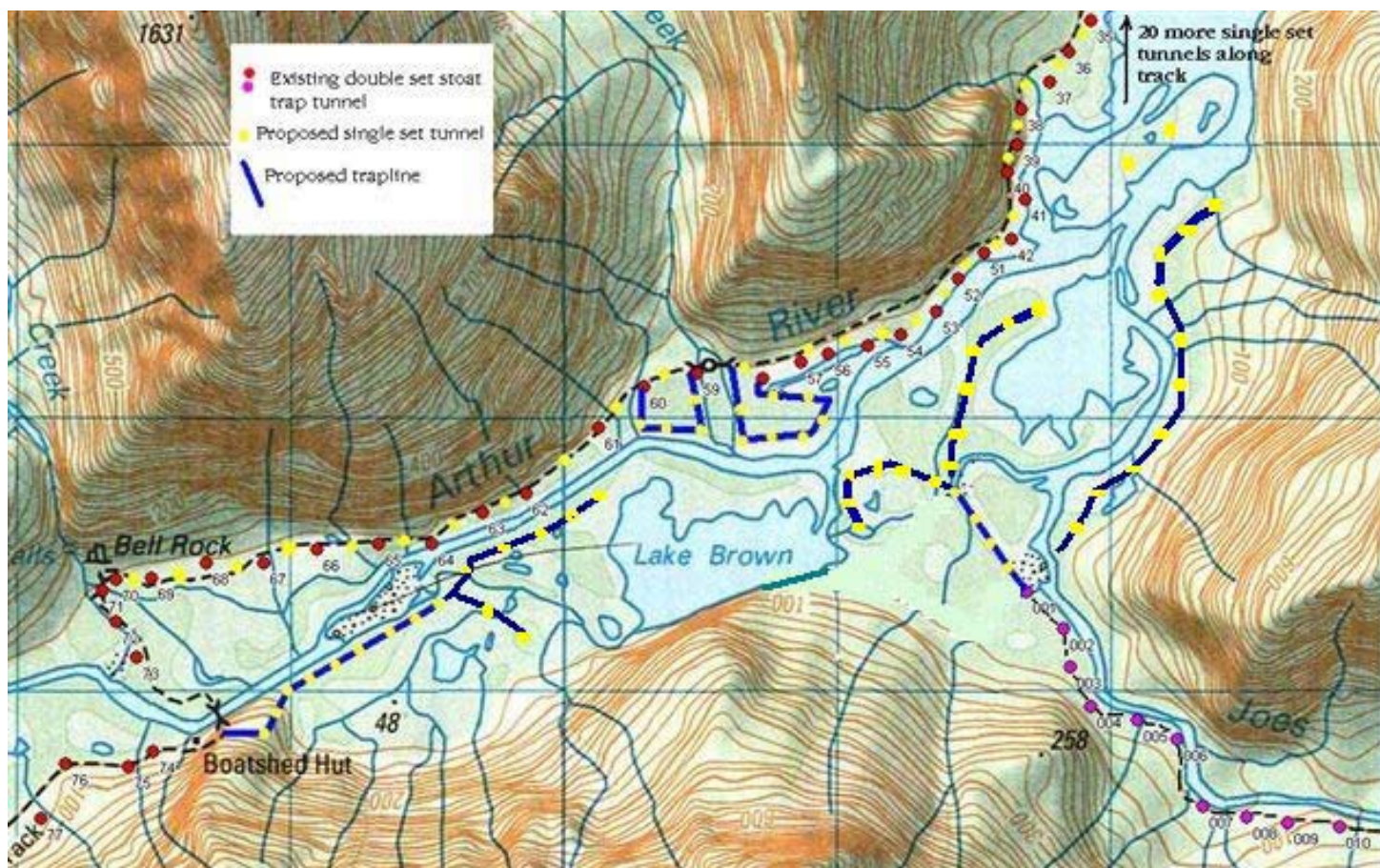
A contractor stayed in the valley post release to observe the birds, set-up hoppers and check stoat traps.



Four feed hoppers were established close to the release site. Three out of the four hoppers had been used during their first night. All the birds were still at the release location for the first two days post release.

Our first dead bird was found on 7 April (cause of death unknown). We also had our first flood through the area post release. Unfortunately, this was not to be our last flood with over 2.5 metres of rainfall within the first six weeks post release. The hoppers were not operational at this stage, due to being flooded.





Over the three weeks between 2 and 17 April we lost a further 8 birds.

The causes of death are not fully known, but two are confirmed as stoat kills, another two are suspected stoat kills, one bird was caught in vegetation and drowned during a flood, and the other three are cause unknown. We had no more deaths until approximately 20 June. The cause of this bird's death is unknown.

Unsettled weather and snow melt kept the river and lake levels high resulting in a reduction of the monitoring effort during September and October 2010 with less time spent in the field. The weather wasn't much better at the start of January 2011.

When the weather has allowed monitoring to be performed, staff have found it difficult tracking the ATS transmitters especially when trying to get close-fixes on individual birds.

Overall we have been impressed by the reliability and range of the ATS transmitters, but due to the terrain and the strength of the signal

with a lot of bounce it can be near impossible to pinpoint an individual bird's location.

We have also had a couple of transmitters switching from normal pulse rate to mortality and then the bird has been found alive, these transmitters then generally switch back to a normal pulse rate.

Survival rate for 2010 released birds is currently 61.5 % (as of the 21/1/2011), but could be higher (69.2%) with the fate of 3 birds unknown due to possible transmitter failure.

Stoat and rat captures in the pateke area are as follows:

Year	Stoats	Rats
Jan – Dec 2009	26	56
Jan – Dec 2010	14	40
Jan – May 2011	28	25
Total	68	121

These results include all the extra pateke traps and the existing Operation Ark traps between



Giants Gate and Bell Rock a total of 135 tunnels (a combination of 37 double set DOC 150's and 98 single set DOC 150's). As of early May 2011 fifteen of the transmitters were still working. This is a far better record than the previous year when no transmitters were working by March and very few were even working nine months post release. We have had a few transmitter failures this year but overall the reliability has been a lot better.

## 2011 Releases

80 birds were released on 24 February. Half of these birds had ATS transmitters attached. All birds were colour and metal banded. Heat shrink was attached to all but two of the transmitter aerials. The heat shrink sticks out very well, especially the green and yellow.

The release went well, with all birds looking good on release, despite a relatively long road trip.

Due to the cost of flying the birds from Queenstown to Milford Sound, I decided to instead drive the birds to Milford. This made for a long day for the people involved in the release, as the flight back from Milford Sound to Queenstown was cancelled due to the weather.

One concern we have with the heat shrink is that the birds stand out a lot more. We are concerned that the birds with the heat shrink

could be targeted more than those without. The birds that have transmitters on mortality appear to mainly be birds with green and yellow heat shrink. We will keep an eye on this and see if this pattern continues.

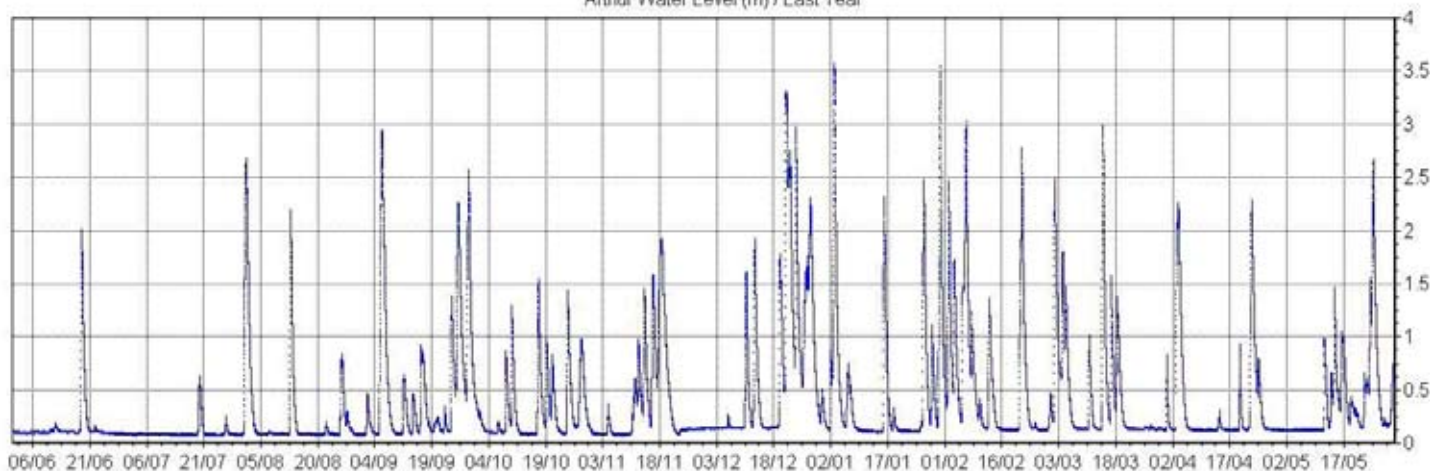
As of 23 May 2011, 8 of the transmitter birds have transmitters on mortality. 2 died not long after release, one was actually seen with a wound to the back of the head but still alive at the time. The other 6 have all gone onto mortality in the past three weeks.

Unfortunately we have yet to track down the bodies. A trip is planned for later this week and we will endeavour to retrieve as many bodies as possible. There is a chance that not all of these birds are actually dead, at least one of the transmitters has been going on and off mortality. We had a couple of transmitters do the same thing with last year's releases and the birds were seen alive, still wearing the transmitter.

We have been having ongoing issue with the flooding of tunnels. Stoat capture rates have been affected by this. Often this is just down to bad timing with flood events occurring soon after tunnels have been serviced.

A big thank you to our sponsors Ultimate Hikes, Otago Community Trust and the Fiordland Conservation Trust for their support and last but not least to all the pateke captive breeders throughout the country who make this work possible.

Arthur Water Level (m) / Last Year



## Tuhua update

**By John Heaphy, DOC Conservation Officer, Tauranga Area Office.**

The water levels in the Tuhua crater lakes just keep getting higher and higher with every rain event at the moment.

Some pateke bred right through the summer out there and with the high water levels extending in places way into the surrounding forest, it has created ideal breeding conditions.

I'm not specifically working on pateke outside of the February count now. However, while presently monitoring other species monitoring in the crater on a fortnightly basis I'm seeing pateke every visit, including several colour banded birds not recorded in the February count. There are a number of pairs currently in full breeding plumage spread out around the wetland. While doing other work, I saw 18 pateke without even trying, so maybe it's promising for this breeding season.

Tuhua is open to the public with a caretaker present over the summer between Labour Weekend and Easter. Otherwise it is closed during winter.

For further information see: [Destination Outdoors B.O.P. website](#)



John managed to get a photo of a young Tuhua bred male in the company of its parents which are both banded captive raised birds.

## Pateke news from the Coromandel

**From Tansy Bliss, DOC Conservation Officer, Hauraki Area Office**

Since the last pateke were released at Port Charles in 2007, numbers recorded during flock counts and on small streams and tributaries has gradually been increasing. This was attributed to the ongoing cat control around the main release site at Port Charles and the additional landscape mustelid control in the wider Moehau Area.

In 2011, a major storm event just prior to the February flock count ripped streams apart, flooded flock sites, and generally disrupted the location of birds during the first count. Strong winds and excessive tides dominated the second flock count and the best count in 2011 was only 321, 100 birds less than 2010.

However observations prior and post the counts indicate that pateke numbers have not dropped dramatically, but that the birds were concealed and displaced. This will need to be verified by further counts.

A small area of pateke habitat in the Port Charles, Carey Road area will be enhanced for pateke using funds secured from Banrock Wines some years ago. Moehau Environmental Group are implementing the enhancement plan with collaboration from the Thames Coromandel District Council and the Department of Conservation. Interpretation panels will compliment the work on the ground, aiming to raise visitors and residents awareness about the pakete population and its growth in recent years.



# Cyclone Wilma hits Tawharanui

**By Matt Maitland, Auckland Council.**

During Cyclone Wilma two slips hit the fence, which caused a breach of a 1x1m gap, and other smaller gaps. It was the first proper fence breach in seven years of operation.

Remedial works on the day (Sat 29 Jan) secured the site to all pests except cats (due to the height). The fence was checked daily as the slip was still mobile and putting pressure on the fence. The mesh delaminates under pressure creating gaps big enough for a rat or stoat.

The standard pest incursion response was initiated, and run for one month after the last sign (to 28/2 unless something found). Also, motion detection infra-red cameras were set and trained on the breach area.

A rodent dog and handler (Miriam Ritchie) visited on 2 February and found no sign of incursions.

Full repairs were effected on 8 February, with 50m of fence removed, the slip cleared, and the fence rebuilt and pest proofed by close of day.

Our buffer control efforts were validated, as this meant few pests reside outside, reducing chances that any could find their way in.

One new feature is that a slip in a planted area has caused a debris dam, with a new pond wetland forming above it. It will be interesting to see how long it lasts, and how long it will be until it's found by ducks.



None of these had bands or transmitters indicating they are Tawharanui juveniles!  
Photo: Alison Stanes



## Mimiwhangata update

***Tiff Browne, DOC Ranger at Mimiwhangata, updates us from the Whangarei Area***

Mimiwhangata Coastal Park and the surrounding private land is home to a very important wild population of pateke.

Since 2001, pateke at Mimiwhangata have been monitored using VHF tags. The information gathered from this has taught us much about the habits of this secretive duck, such as where they nest, feed, flock and roost. DOC has used this information to create suitable habitat at Mimiwhangata, such as brood ponds, lakes, wetlands and planted riparian edges for roosting.



Survival monitoring at Mimiwhangata has shown that pateke are very vulnerable to predation at all life stages, and that we can increase the population through intensive predator control. The DOC pateke project for mustelids and wild cats currently traps approx. 2500ha of land between Teal Bay and Whananaki South. Over 500 traps are in place across both crown and private land, and this past year alone, 137 stoats, 46 cats, over 1300 rats and numerous possums were caught. This trapping adjoins predator control undertaken by community groups and landowners, which gives both continuity and scale to the pateke protection programme.

The pateke population is monitored annually through flock counts. These show the number of pateke on Northland's east coast has increased dramatically since intensive management began in 2001, with between 400 and 500 pateke counted at flock sites over the past few years.

Now that survival monitoring is complete, the next stage in pateke recovery is to learn more about habitat use. Debbie Armstrong is a PhD student from Otago University using new GPS/GSM tags to track pateke (see previous article). The information from this study may show us what habitat pateke prefer, so we can then focus on how to further improve their environment.

Northland pateke are unique in that they have much greater genetic diversity than the Great Barrier Island population, and are currently underrepresented in the captive population. We are in the process of moving eggs from the wild to captivity in order to boost the genetic vitality of the captive population.

This project enjoys great support from Ngati wai Trust Board, community groups and local landowners, many of whom are predator trapping and creating pateke habitat on their own land.



# Acknowledgements

We would like to acknowledge and thank our partners and sponsors in the Pateke Recovery Programme, and those who have contributed to this newsletter, including

- Pateke Recovery Group members,
- Pateke recovery captive breeders,
- DOC,
- Ngatiwai,
- Ducks Unlimited,
- Peacock Springs,
- University of Otago,
- Tutukaka Landcare Coalition,
- Auckland Council,
- Moehau Environmental Group,
- Cape Kidnappers Wildlife Sanctuary,
- Banrock Station Wines,
- Biodiversity Condition Fund,
- World Wildlife Fund,
- Ultimate Hikes,
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- Fiordland Conservation Trust,
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## Acknowledgement and Disclaimer: from the Editor

*As you can see, I am indebted to many people for the content of this newsletter. To them, I express my gratitude. Needless to say, the mistakes in the newsletter are mine, certainly not theirs.*

*Any opinions or thoughts expressed are those of the writers alone and cannot be taken as the opinion or policy of the Department of Conservation or any other institution or persons.*

